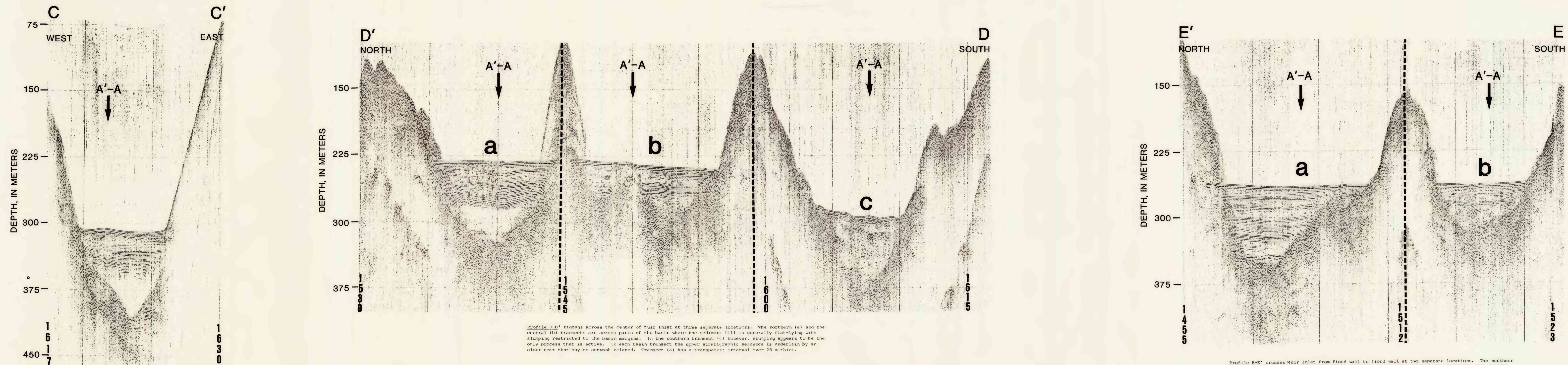


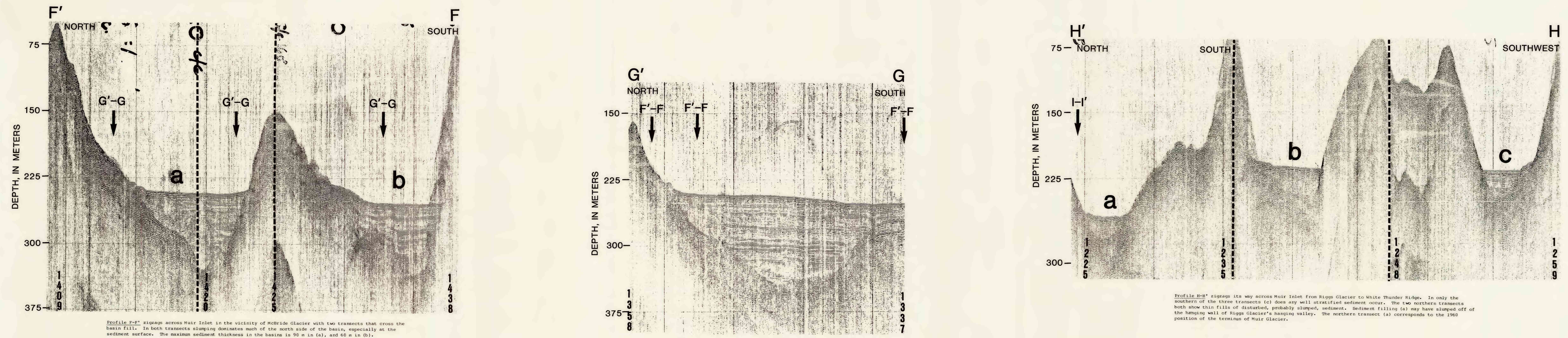
Profile A-A' trends down the center of Muir Inlet from just south of McBride Glacier (A') to the southern edge of the map (A). The profile line transects three major sediment basins labeled (a), (b), and (c), separated by two transverse ridges. The sediment fill in each basin is generally flat lying and each basin has a generally flat surface. The basin's floors are at different depths suggesting that even minor interconnections between basins do not exist. The central basin (b) has nearly overtopped its southern boundary ridge. Hummocky surface topography and irregular subsurface reflectors suggest slumping is an active process at the south end of the northern basin (a) and the north ends of the central (b) and southern (c) basins. Maximum sediment fills are 95 m (a), 105 m (b), and 115 m (c) in the three basins. Subsequent bedrock topography is hummocky and rounded. The absence of horizontal subsurface reflectors at depth in the two southern basins may be due to one of two causes: 1) lack of acoustic energy to resolve details at the base of the sediment section, or 2) a different type of sedimentary unit at the base of the section. The well-layered glacial-marine unit may be underlain by a more massive, coarser outwash and till sequence. The thick sediment sequence superimposed on bedrock at 1605 (c) is a side echo from the adjacent, thicker, basin fill.

Profile B-B' is a transect across Muir Inlet from fiord wall to fiord wall. Note that southern fiord wall is shown in its entirety, not just the case in any later fiord profiles. The east wall of the fiord is composed of a thick section (1330 m) of slumping, well-stratified sediment that may represent hypothermal sands and gravels or a very rigidly accumulated post-tillite ice age outwash delta. This profile is located at the 1905 A-10 position of the terminus of Muir Glacier. The sediment filling the fiord in this transect is not merely as flat-lying as that in mid-basin. Much of the irregular strata may be related to material entering the basin from the fiord wall rather than through the water column. The lower 20 m of fiord-fill is separated from the upper 80 m by a strong reflector that appears to have a channel cut in its surface. This lower 20 m of sediment is not included in the sediment thickness.



Profile C-C' zigzags across the center of Muir Inlet at three separate locations. The northern (a) and the central (b) transects are across parts of the basin where the sediment fill is generally flat-lying with slumping restricted to the basin margins. In the southern transect (c) however, slumping appears to be the only process that is active. In each basin transect the upper stratigraphic sequence is underlain by an older unit that may be outwash related. Transect (a) has a transparent interval over 25 m thick.

Profile E-E' crosses Muir Inlet from fiord wall to fiord wall at two separate locations. The northern transect (a) consists of a well stratified, 90-m-thick sequence of flat-lying beds with only minor slumping. Layering in the southern transect (b) is irregular with suggestions of multiple sources, slumping, and faint crossbedded sequences. Maximum fill in the basin is 45-50 m.



Profile F-F' zigzags across Muir Inlet in the vicinity of McBride Glacier with two transects that cross the basin fill. In both transects slumping dominates much of the north side of the basin, especially at the sediment surface. The maximum sediment thickness in the basins is 90 m in (a), and 60 m in (b).

Profile G-G' is a north-south transect of the sediment fill in the large basin opposite McBride Glacier. In 1956, the transverse ridge (G') that is the northern limit of the basin was the location of the terminus of Muir Glacier. The well-stratified sediment fill, with a maximum thickness of between 100 and 105 m first started to accumulate during the 1940's. The maximum sedimentation rate for this basin is 3 m/yr. Some sediment at the north end of the basin has recently entered through slumping.

Profile H-H' zigzags its way across Muir Inlet from Riggs Glacier to White Thunder Ridge. In only the southern of the three transects (c) does any well stratified sediment occur. The two northern transects both show this fill of slumped, probably slumped, sediment. Sediment filling (a) may have slumped off of the heming wall of Riggs Glacier's hanging valley. The northern transect (a) corresponds to the 1960 position of the terminus of Muir Glacier.

KEY TO SEISMIC PROFILE DATA

- D'-D Individual identification letters for each profile-corresponds to sheet 1
- D'-D Designates the place where two seismic profile lines intersect. The letters identify the intersecting line
- a Locates a feature described in the accompanying text
- 1 5 3 0 Time mark - corresponds to sheet 1
- Designates major change in course

MAP OF MARINE GEOLOGY OF UPPER MUIR AND WACHUSETT INLETS, GLACIER BAY, ALASKA:
SEDIMENT DISTRIBUTION AND THICKNESS, BATHYMETRY, AND INTERPRETED SEISMIC PROFILES

THIS MAP IS PRELIMINARY AND HAS NOT BEEN REVIEWED FOR CONFORMITY WITH
U.S. GEOLOGICAL SURVEY EDITORIAL STANDARDS AND STRATIGRAPHIC NOMENCLATURE

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